Technical Manual

State 12/2025 - Version 1.0

KNX RF+ Window Handle, Secure

RF-FGxS.01S

Further documents:

Data sheets:

https://www.mdt-group.com/for-professionals/downloads/datasheets.html

Assembly and operating instructions:

https://www.mdt-group.com/for-professionals/downloads/assembly-and-operation-instructions.html

Solution proposals for MDT products:

https://www.mdt-group.com/for-professionals/tips-tricks.html

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1 Content

2 Overview

2.1 Overview devices

This manual applies to the following devices (article numbers **in bold**).

- **RF-FGWS.01S** KNX RF+ Window Handle, Secure, white.
- **RF-FGES.01S** KNX RF+ Window Handle, Secure, stainless steel.

2.2 Functions

Self-sufficient due to battery operation
The window handle is battery-operated and completely self-sufficient. Additional wiring for KNX-bus or power supply is not required.

Detection of the window status via the handle position
The window status (closed, open, tilted) is detected via the position of the window handle. The assignment of handle positions to messages can be configured.

Output of the battery status
The battery status of the window handle is output cyclically as a percentage value.

Alarm detection by vibration sensor
Alarm output via shock sensor An integrated vibration sensor in the window handle detects vibrations on the window frame or glass pane. The sensitivity of the sensor can be adjusted.

Window open notification
A notification can be issued if the window handle remains in the "open" position for a configurable period of time. This function is used as a reminder of ongoing ventilation processes and helps to ensure that the window is not forgotten after ventilation.

Transmitting a warning message in case of low battery voltage
An adjustable threshold value can be used to issue a warning message once or cyclically if the battery voltage falls below a specified level.

Updateable via MDT Firmware App
If necessary, the device can be updated with the ETS via the MDT Firmware App. The download is available free of charge at www.mdt.de/downloads.html and www.knx.org.

2.3 Structure and handling

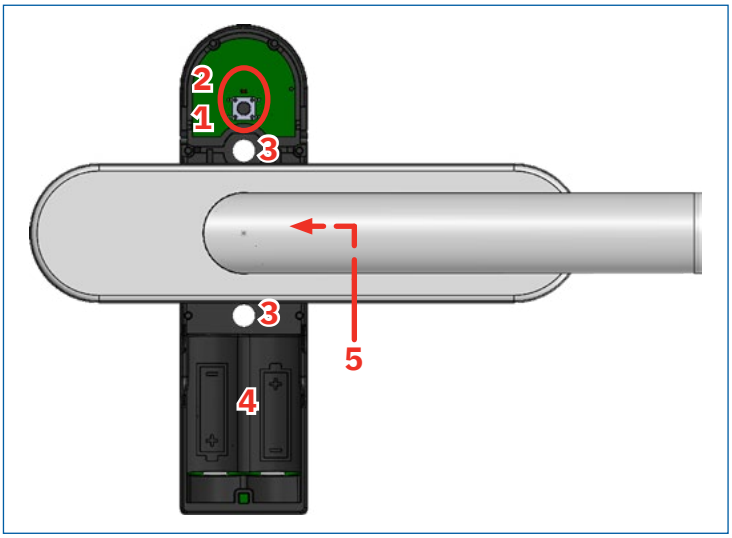

Figure 1: Structure and handling

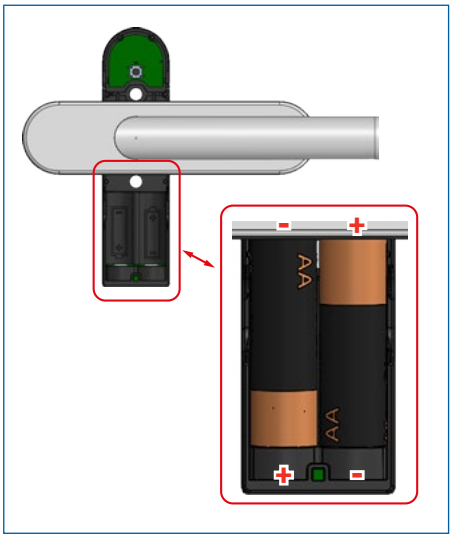

Figure 2: Polarity of the batteries

1 – Programming button
2 – Programming LED (red)
3 – Fastening points
4 – Battery tray (2x AA batteries)
5 – Grub screw for square spindle

2.4 Commissioning

2.4.1 Assembly

1. **Remove the existing handle:**
   - Move the handle to a horizontal position ("3 o'clock" or "9 o'clock" position).
   - Remove the window handle according to the manufacturer's instructions.
2. **Adjust the length of the square spindle:**
   - Find out the length of the square spindle on the existing window handle.
   - Release the grub screw on the handle of the MDT RF+ window handle.
   - Set the square spindle to the same length as the previously installed window handle.
   - Tighten the grub screw on the MDT RF+ window handle again.
3. **Install MDT RF+ window handle:**
   - Move the handle of the MDT RF+ window handle to a horizontal position ("3 o'clock" or "9 o'clock" position).
   - Ease the rosette off the base plate towards the handle and then rotate it by 90°.
   - Place the window handle onto the window profile and secure it with the appropriate screws. - For a square spindle of 32–37 mm: use 50 / 40 mm (top / bottom). - For a square spindle of 43 mm: use 60 / 50 mm (top / bottom).

Note: It is recommendable to proceed with commissioning before replacing the cover rosette.

2.4.2 Commissioning as a KNX RF+ device

Note: To start up with ETS, you need to have an RF+ radio line coupler in the KNX topology that's enabled to add devices.

1. Ease the rosette off the base plate towards the handle and then rotate it by 90°.
2. Insert batteries. Pay attention to correct polarity.
3. Press the programming button. (The red programming LED lights up continuously).
4. Set and program the physical address in the ETS (the programming LED switches off).
5. Configure settings in the application programme and program.
6. After programming, reposition the rosette to aligned cover the baseplate allows it to snap into position.

Note: The device may be in ‘deep sleep mode’. In this mode, data cannot be received. To ensure reliable telegram transmission, it is recommended that the device be set to programming mode before the application programme is transferred.

2.4.3 Security

2.4.3.1 KNX Secure

The use of KNX Secure functionality requires ETS version 5.7 or higher.

KNX Secure has two different ways: IP Secure and Data Secure.

KNX IP Secure enables secure transmission in IP networks by encrypting and authenticating transmitted messages. P Secure assures that KNX tunneling or routing messages at the IP level cannot be read or manipulated. KNX IP Secure forms an additional security layer that protects all KNXnet IP data traffic.

KNX Data Secure ensures that messages/telegrams sent by KNX devices (regardless of the KNX medium) are encrypted and/or authenticated, provided that both participants are KNX Data Secure-enabled. If one of the participants does not support KNX Data Secure, communication will continue to be unencrypted.

Device certificate
Device certificate The device certificate is used to ensure the secure commissioning of a KNX Secure device. The key contained in the certificate must be scanned or entered once by the integrator/installer in the ETS. The device certificate is no longer required for further transfers unless the device is reset via a factory reset (see 2.8 Resetting to factory settings). The certificates of all devices in a project should be removed from the device label after initial commissioning and stored for the specific project.

Secure Mode
If a device is operated with security enabled, it works in "secure mode" and transmits data in encrypted form. Identifiable by the blue shield symbol.

U**nsecured mode - Plain Mode**
Plain Mode If a device is operated without security enabled, this is referred to as "unsecured mode" (plain mode). The data are transmitted unencrypted.

2.4.3.2 Project password

Activated KNX Secure requires an ETS project password. Without a project password, secure commissioning is not possible and the devices will be loaded in unsecured mode.

2.4.3.3 Commissioning with activated KNX Secure

When importing the application program into the KNX project, a message appears indicating the need for a project password. If you cancel at this point, the device will be loaded without KNX Secure functions. The device certificate is then entered. If a webcam is connected, this can be done by scanning the QR code; alternatively, the certificate can be entered via the keyboard.

2.4.4 Reset to factory settings

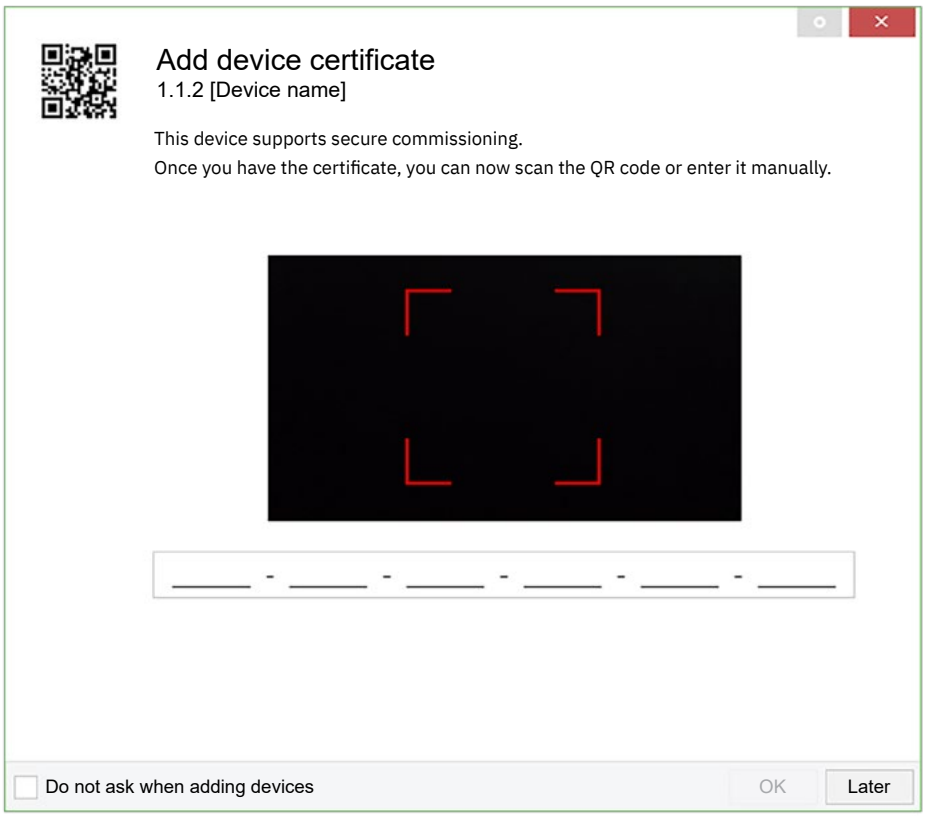

Figure 3: Commissioning with ETS – Security: Add device certificate

2.4.4 Reset to factory settings

If the device has already been in use or if the initial start-up has failed, it must be reset to factory settings according to the following procedure.

1. Press and hold the programming button for at least 10 seconds. The programming LED is flashing.
2. Now briefly release the button and press it again for at least 5 seconds until the programming LED flashes rapidly. The LED switches off when you release the button.
3. The device will reset and reboot.

3 Configuration as a KNX RF+ device

3.1 Communication objects

3.1.1 Standard settings of the communication objects

Standard settings								
No.	Name	Object function	Length	C	R	W	T	U
1	In operation	Output	1 Bit	■			■	
2	Window position	closed / open	1 Bit	■			■	
3	Window tilt position	not tilted / tilted	1 Bit	■			■	
5	Vibration alarm	Alarm	1 Bit	■			■	
6	Message when window is "open"	Status	1 Bit	■			■	
7	Battery	Status	1 Byte	■			■	
8	Battery	Warning	1 Bit	■			■	

Table 1: Communication objects – Standard settings

The table above shows the preset standard settings. The priority of the individual communications objects and the flags can be adjusted by the user as required. The flags assign the communication objects their respective tasks in programming, where C stands for communication, R for read, W for write, T for transmit and U for update.

3.2 ETS parameters

3.2.1 General settings

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Send "In operation" cyclically	■ **not active** ■ active	Activation of an object.
Only if "Send 'In operation' cyclically" → "active"		
Cycle time	00:05 ... 24:00 hh:mm **[05:00 hh:mm]**	Setting the transmission interval. **Only if "Send 'In operation' cyclically" → "active".**
Ready to receive data after "In operation"	■ not active ■ **active**	Delays the deactivation of the receiver after the "In Operation" transmission.
Duration	00:01 ... 04:00 mm:ss **[03:00 mm:ss]**	Duration of the delay. **Only if "Ready to receive data after ..." → "active".**
Ready to receive data after handle movement	■ **not active** ■ active	Delays the deactivation of receive mode after a handle movement.
Duration	00:01 ... 04:00 mm:ss **[03:00 mm:ss]**	Duration of the delay. **Only if "Ready to receive data after ..." → "active".**
Ready to receive data after restart	■ not active ■ **active**	Delays the deactivation of receive mode after a restart.
Duration	01:00 ... 15:00 mm:ss **[05:00 mm:ss]**	Duration of the delay. **Only if "Ready to receive data after ..." → "active".**

Table 2: General settings

Send "In operation" cyclically
The “Operating” object is used to show on the bus that the device is alive. If activated, an “ON” telegram is sent cyclically.

Note: Short intervals → shorter battery life.

Ready to receive data after after "In operation" / handle movement / restart
This parameter delays the deactivation of reception readiness after sending the respective message. This means the device remains ready to receive for a defined period in order to process any immediately following telegrams or feedback.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
1	In operation – Output	1 Bit	Transmitting a cyclic "In operation" message. **Only if "Send 'In operation' cyclically" → "active".**

Table 3: Communication objects – General settings

3.2.2 Handle positions

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Advanced settings	■ **not active** ■ active	Activates the advanced handle settings
If "Advanced settings" → "active"		
Handle: Down / Right / Up / Left	■ open ■ closed	Specifies the grip positions at which the corresponding states are sent.
Handle: Down / Right / Up / Left	■ not tilted ■ tilted	
Value for "open"	■ Value = 0 ■ **Value = 1**	Specifies whether the message is to be sent with positive or inverted polarity.
Value for "tilted"	■ Value = 0 ■ **Value = 1**	Determines whether the message is sent with positive or inverted polarity.
Send window position cyclically	■ **not active** ■ active	Specifies if the object is sent cyclically.
Send window tilt position cyclically	■ **not active** ■ active	Specifies if the object is sent cyclically.
Cycle time	00:05 ... 99:59 hh:mm **[05:00 hh:mm]**	Setting the transmission interval. **Nur wenn mindestens einer der Parameter „... zyklisch senden“ →„aktiv“.**
Message when window is "open"	■ **not active** ■ active	Activates an additional, time-delayed message when the window is opened.
Only if "Notify when window is open"		
Value for open	■ Value = 0 ■ **Value = 1**	Determines whether the message is sent with positive or inverted polarity.
Delay time	00:01 ... 24:00 hh:mm **[00:05 hh:mm]**	Defines how long the window must remain open in order to send the message.
Send cyclically	■ **not active** ■ active	Specifies if the object is sent cyclically.
Cycle time	00:05 ... 12:00 hh:mm **[01:00 hh:mm]**	Setting the transmission interval.

Table 4: Settings – Handle positions

Advanced settings
In the standard application, no adjustment of the messages from the window handle is required. The window is indicated as open when the handle points to the left, right or top, and as closed when the handle points downwards. The tilted state is only indicated when the handle is in the upward position. If the actual states of the window differ from this (e.g. with roof windows), each handle position can be individually configured in the advanced settings.

Value for open/tilted
If required by the application, the polarity of the message can be reversed using this parameter. This means that for the handle positions "open" or "tilted", the value "0" is transmitted instead of the standard value "1".

Send window position (tilt position) cyclically
By activating these parameters, the respective communication object is sent cyclically.

Cycle time
After activating at least one of the "... send cyclically" parameters, a common parameter "cycle time" appears, which defines the transmission interval for all of the maximum 3 status messages to be transmitted cyclically.

Note: Short intervals → shorter battery life.

Message when window is "open"
When the parameter is activated, a new communication object appears which sends the window status "open" and "closed". The transmission only starts when the window status ‘open’ or “closed” has not changed for the time set under **"Delay time"**. This message can be reversed using the "Value for open" parameter.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
2	Window position – closed / open	1 Bit	Status message
3	Window tilt position – not tilted / tilted	1 Bit	Status message
4	Handle position – Position value	1 Byte	Output of the handle position
6	Message when window is "open" - Status	1 Bit	Status message

Table 5: Communication objects – Handle positions

3.2.3 Vibration alarm

The MDT Window Handle detects typical burglary scenarios such as prising open or forcing open. Strong vibrations on the pane or frame also trigger an alarm.

Important: The alarm function of the window handle must not be integrated into a burglar alarm system or used to prevent damage to property. (Chapter 5.1 Statutory requirements)

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Sensitivity	■ not active ■ low ■ medium ■ high ■ **verv high**	Sets the sensitivity of the shock sensor
Repetitions	0 ... 59 **[1]**	Determines how often the alarm is repeated.
Interval time	05 ... 59 ss **[05 ss]**	Interval time (in seconds) between alarm repetitions. **Only if "Repetitions" > "0"**

Table 6: Settings – Alarm

Sensitivity
This parameter is used to set the sensitivity of the shock sensor.
If the sensitivity is too high, other vibrations of the pane may also trigger an alarm. In this case, the sensitivity of the alarm function should be reduced, especially if this occurs frequently.

Repetitions
Specifies how often the alarm message is repeated as a telegram. The value '0' means that no repetition takes place and the object is only transmitted once in the event of an alarm.

As long as the set number of repetitions has not yet been reached, the alarm detection remains deactivated. After the last repetition of the alarm telegram, the alarm detection is automatically reactivated.

Note: Many repetitions → shorter battery life.

Interval time
This parameter sets the interval time between repeatedly sent alarm telegrams.

The diagram illustrates the triggering of the alarm telegram and its repetitions:

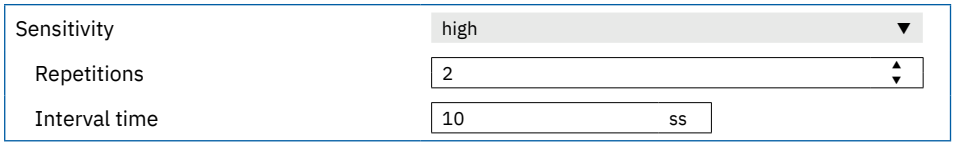

Figure 4: Settings for example "Alarm telegram"

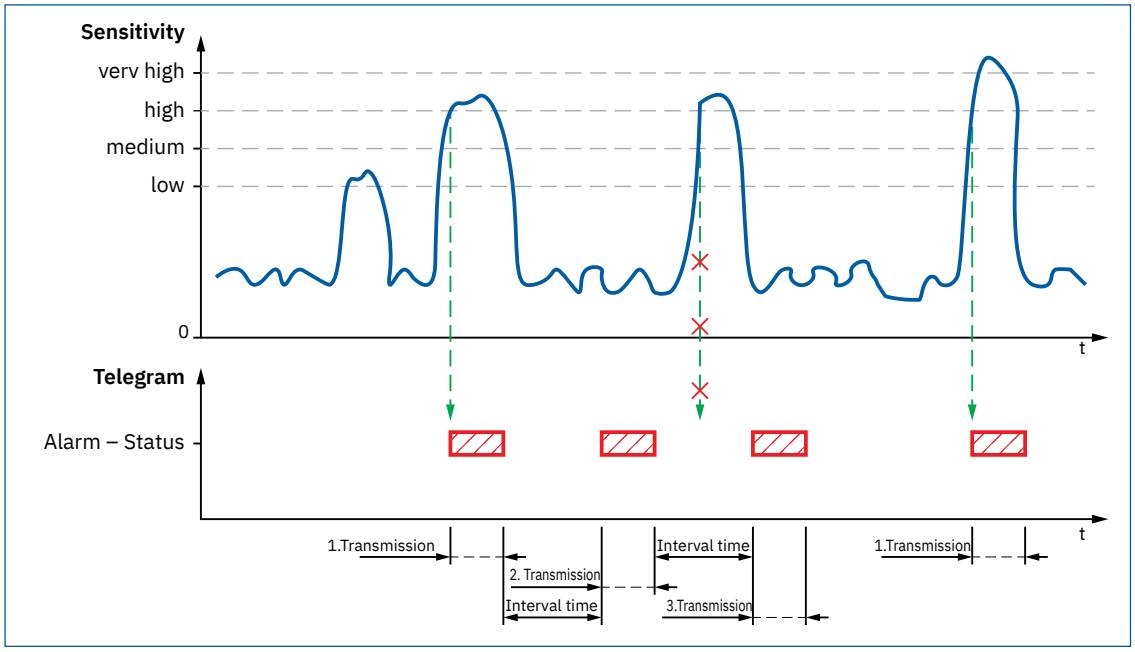

Figure 5: Diagram – Trigger behaviour and repetitions of alarm messages

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
5	Vibration alarm	1 Bit	Sending an alarm message

Table 7: Communication object – Alarm

3.2.4 Battery

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Send battery level cyclically	■ **not active** ■ active	Activation of an object.
Low battery voltage warning	■ **not active** ■ active	Activation of an object.
Threshold	1 ... 100 % **[20 %]**	Sets the threshold for the warning message. **Only if "Low battery voltage warning" → "active"**
Send battery warning cyclically	■ **not active** ■ active	Activates the cyclic transmission of the warning message **Only if "Low battery voltage warning" → "active"**
Cycle time: Battery level / low battery voltage	00:05 ... 99:59 hh:mm **[12:00 hh:mm]**	Setting the transmission interval. **Only if "... send cyclically" → "active".**

Table 8: Settings – Battery

Send battery level cyclically
When this parameter is activated, an additional object appears which transmits the battery level in %. A value of 100% corresponds to a full battery, a value of 1% to a battery voltage at which the electronics of the window handle no longer function reliably.

Low battery voltage warning
When this parameter is activated, an additional object appears that transmits a one-time warning message when the value falls below an adjustable threshold.

- "0": Battery level good/acceptable
- "1": Battery level critical

Threshold
Configurable threshold, below which the "Battery – Warning" object transmits a message. A threshold value of 100% corresponds to a full battery, a threshold value of 1% to a battery voltage at which the electronics of the window handle no longer function reliably.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
7	Battery – Status	1 Byte	Sending the battery status.
8	Battery – Warning	1 Bit	Sending of a warning message.

Table 9: Communication objects – Battery

4 Index

4.1 Register of illustrations

4.2 List of tables

5 Appendix

5.1 Statutory requirements

he devices described above must not be used in conjunction with devices which directly or indirectly serve human, health, or life-safety purposes. Furthermore, the described devices must not be used if their use could pose a danger to people, animals or property.
Do not leave the packaging material lying around carelessly. Plastic films/bags etc. can become dangerous toys for children.

5.2 Disposal

Electrical and electronic devices must not be disposed of with household waste. Consumers are legally obliged to hand in old devices at an authorised collection point.

Please help to protect the environment and health by disposing of old devices properly. You can obtain information about return options from your local authority or specialist retailers.

5.3 Note on battery disposal

Batteries must not be disposed of with household waste. Consumers are legally responsible for returning used batteries.
Used batteries may contain harmful substances that can damage the environment and health. At the same time, they contain valuable raw materials (e.g. iron, zinc, manganese, nickel) that can be recycled.

You can return used batteries free of charge to retailers or at municipal collection points after use.

Meaning of the symbol:
The crossed-out waste bin indicates that batteries should not be disposed of with household waste.

5.4 Assembly

Danger to life due to electric current!

All work on the device may only be carried out by qualified electricians. The country-specific regulations as well as the valid KNX guidelines must be observed.

The devices are approved for operation in the European Union and bear the CE mark. Use in the USA and Canada is not permitted!

5.5 History

V 1.0	First version of the manual	DB V 1.0	11/2025